Amendment to the Specification

Please replace the paragraph beginning on page 5, line 19 with the following:

An example section of a superconducting article 10 with a biaxially textured superconductor layer 12 grown epitaxially on a biaxially textured, gold buffer layer 14, according to this invention, on a substrate 16 is shown diagrammatically in FIG. 1. A significant feature of this invention, as illustrated in FIG. 1, is that it provides a method of electrodepositing a gold buffer layer [[12]] 14 having biaxial texturing onto a substrate 14, so that a biaxially textured superconductor material 12 or other electrically active layer can be grown on the gold buffer layer 14. The gold buffer layer 14 is biaxially textured according to this invention, because such biaxial texturing in the gold buffer layer 14, as indicated diagrammatically by arrows 32 in FIG. 1, will induce corresponding biaxial texturing in the superconductor layer 12, as indicated diagrammatically by arrows 34, 36 in FIG. 1. Therefore, a significant part of this invention includes attaining biaxial texturing in the gold layer 14, as will be described in more detail below.

Please replace the paragraph beginning on page 6, line 17 with the following:

The gold buffer layer [[12]] 14 utilized in the present invention may be deposited onto the metal substrate 16 by electrodeposition in a chemical bath. Conventional electrodeposition is generally performed at between about 1 and 5 A/cm^2, for between

about 1 and 10 minutes. However, as previously noted and shown in FIG. 2, conventional electrodeposition of gold does not result in biaxial texturing.

Please replace the paragraph beginning on page 6, line 22 with the following:

In contrast, the electrodeposition process of the present invention utilizes lower current densities applied over longer time periods when compared to traditional electrodeposition to achieve biaxial texturing in the gold buffer layer 14. In one embodiment, a Ni cathode may be electroplated at a generally constant current density between about 0.10 and 3.5 mA/cm^2 for between about 1 and 60 minutes using a gold plating solution and a Pt anode. In a single deposition under these conditions, the resulting ~~biaxially~~ textured gold layer [[12]] 14 may have a thickness between about 0.01 and 5 microns. Thicker films may be produced with increased deposition time and/or a multilayer deposition process in accordance with the present invention. The resulting electroplated gold film [[12]] 14 has ~~biaxial~~ texturing, which provides an optimal surface for depositing a superconductor material 12 thereon. As used herein, the term "~~biaxial~~ texturing" refers to both partial and complete biaxial texturing of the gold layer [[12]] 14, as indicated by X-ray diffraction scans. In embodiments in which the metal substrate 16 is biaxially textured, the electrodeposited gold layer 14 may be epitaxially textured relative to the metal substrate 16 such that the gold layer 14 has the same ~~biaxial~~ crystalline orientation as the metal substrate 16.

Please replace the paragraph beginning on page 7, line 10 with the following:

After electrodeposition, the biaxial texturing in the gold layer [[12]] 14 may be increased or enhanced by annealing in a suitable forming gas, such as a gas including hydrogen, argon, nitrogen or combinations. In one example embodiment, the forming gas is a mixture of 4 percent hydrogen in argon. In another example embodiment, the forming gas is a mixture of 10 percent hydrogen in nitrogen. Of course, percentages of hydrogen in nitrogen, argon, or other inert gases can also be used. The annealing process may be performed at between about 500 and 600 °C for between about 12 and 48 hours.